

## ABSTRACT OF THE DISCLOSURE

In a laser measurement apparatus capable of measuring a moving object or a designated object to be measured by tracking an object to be tracked and detecting the position of the tracked object as needed, optical signal processing units 103 through 105 output laser beams having different wavelengths via a common optical path A toward a corner cube 100 attached to an object to be measured, and detect the laser beams being reflected on the corner cube 100. A control unit 102 controls motors 110, 111 so that the laser beams return to a predetermined position of an optical position sensitive detector 117 of an optical signal processing unit 103, by which the direction of a reflecting mirror 112 is controlled so that the laser beams track the object. The control unit 102 computes the distance, shape, position, speed etc. of the object to be measured based on signals detected via the optical signal processing units 104, 105 while having the laser beams output from optical signal processing units 104, 105 track the object to be tracked.